

National Highway Traffic Safety Administration



Asleep at the Wheel, A Nation of Drowsy
Drivers:
Public Awareness, Behavior, and Education

Rafael Pelayo, MD

Task Questions

- What are the current public attitudes and state of knowledge about drowsy driving?
- How do we educate and change attitudes about drowsy driving?
- How do we advise drivers on recognizing their own drowsiness?
- What should they do about it?
- **What are the priority audiences for drowsy driving education?**
- What is the most effective way to provide the communications?

Why are motor vehicle crashes the leading cause of death of U.S. teens?

- In 2013, 2,163 teens in the US ages 16-19 were killed and 243,243 were treated in emergency departments for injuries suffered in motor vehicle crashes.

- Six daily teen deaths from motor vehicle injuries

Source: CDC http://www.cdc.gov/MotorVehicleSafety/Teen_Drivers/

2015 NHTSA '5 to Drive' Teen Safety Campaign

1. No cell phone use or texting while driving
2. No extra passengers
3. No speeding
4. No alcohol
5. No driving or riding without a seat belt

<http://www.safercar.gov/parents/TeenDriving/teendriving.htm>

How about saying “Yes to Sleep”?



The Great Sleep Recession: Changes in Sleep Duration Among US Adolescents, 1991–2012 *Ped* 2015

- Nationally cross sectional survey from 1991 to 2012 (N = 272,077). They were asked how often they get ≥ 7 h of sleep and how often they felt they got less sleep than they should
- Sleep generally declined over 20 years
- Girls were less likely to report getting ≥ 7 h
- **Only about 25% of 17 y felt they were getting enough sleep**

Studies report younger drivers more susceptible to sleep effects

- 17-24 yo with ≤ 6 hrs sleep more MVA *JAMA Peds* '13
- 40% of teens reported drowsy driving, O.R. 2.1 for MVA *JCSM* '10
- After sleep restriction younger drivers more lane deviations than elderly '12
- Young drivers sleepier while driving at night '09
- Hazard perception decreased in sleepy 17-24 yo compared to experienced drivers '09
- Younger males have higher frequency of drowsy driving and reported lowest perceived personal risk in regards to driving while drowsy '11

Pervasive co-occurrence of sleep abnormalities in psychiatric disorders Goldstein Walker '14

- Sleep loss has consistently been associated with subjective reports of irritability and emotional volatility
- The sleep-deprived brain may suffer a mismatch between excessive subcortical reactivity and impaired higher-order prefrontal functioning,... there can be a failure of affectively guided judgments, decisions, and reactions
- Sleep deprivation appears to trigger a state where rewards are overvalued, yet losses are undervalued

The effects of poor quality sleep on brain function and risk taking in adolescence *NeuroImage '13*

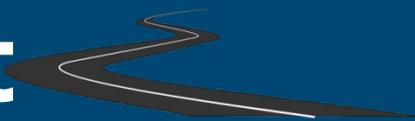
- Examined how poor sleep quality relates to cognitive control and reward related CNS function during risk taking in 46 teens
- Adolescents who reported poorer sleep also exhibited greater risk-taking. This association was paralleled by less recruitment of the DLPFC during cognitive control, greater insula activation during reward processing, and reduced functional coupling between the DLPFC and affective regions. These results suggest that poor sleep may exaggerate the imbalance between affective and cognitive control systems, leading to greater risk-taking in adolescents

Adverse Effects of Daylight Saving Time on Adolescents' Sleep and Vigilance JCSM'15

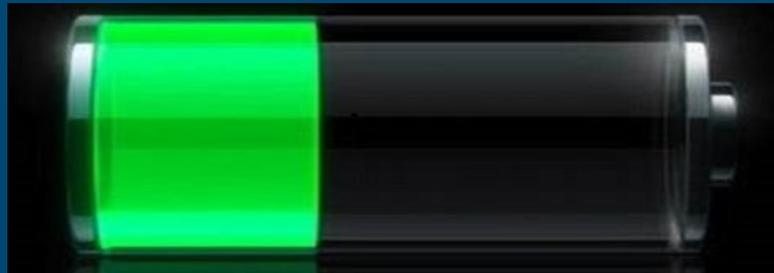
- Assess differences in measures of sleep and vigilance by actigraphy, sleep diary, sleepiness scale, and PVT during school days immediately preceding and following DST
- Sleep duration declined by 32 min on the weeknights post-DST, reflecting a cumulative loss of 2 h 42 min compared to the baseline
- Vigilance deteriorated, with a decline in PVT, resulting in longer reaction times and increased lapses and daytime sleepiness

Eisenhower National System of Interstate and Defense Highways was authorized June 29, 1956

**On June 29, 2009 the first
iPhone released**

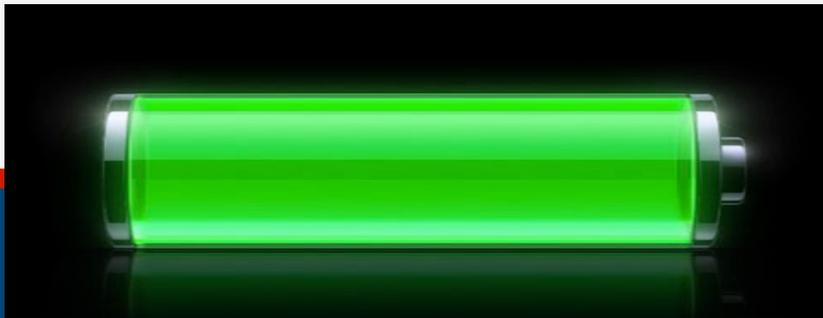


How do you feel when you are away and your cell phone is only half charged?



Animals do not appear to voluntarily sleep deprive themselves





Sleep and Fully
Recharge Your Brain!



Safer drivers. Safer cars. Safer roads.

Outlook

If lack of sleep impairs judgment and increases risk taking behavior in young drivers, then the road to take is clear:

- Sleep Health education needs to be part of the curriculum and public awareness at AT EVERY LEVEL
- Drowsy driving awareness can be an entry in the school curriculum
- This will save lives